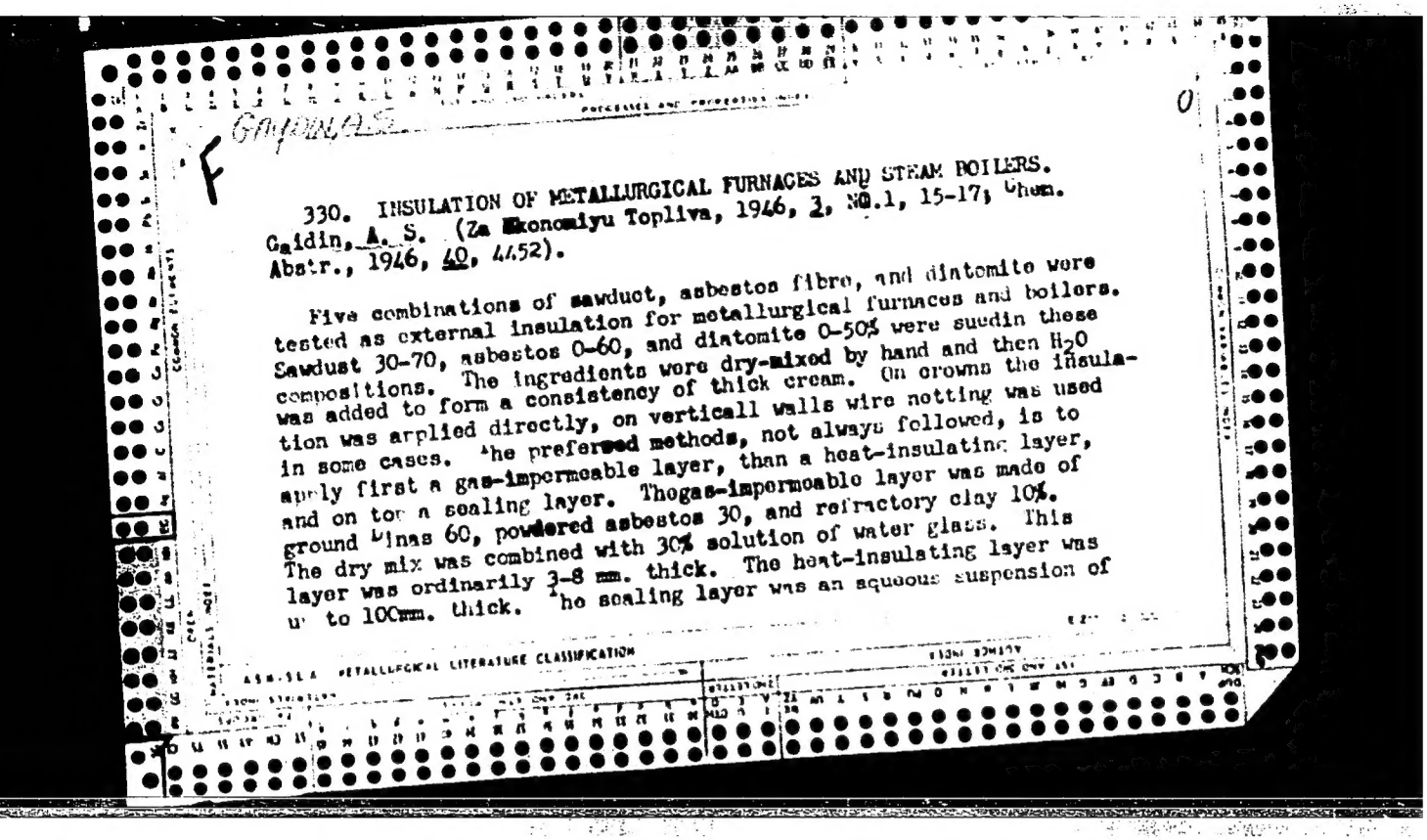

330. INSULATION OF METALLURGICAL FURNACES AND STEAM BOILERS.
Gaidin, A. S. (Za Ekonomiyu Topliva, 1946, 2, No.1, 15-17; Chem. Abstr., 1946, 40, 4452).

Five combinations of sawdust, asbestos fibre, and diatomite were tested as external insulation for metallurgical furnaces and boilers. Sawdust 30-70, asbestos 0-60, and diatomite 0-50% were suedin these compositions. The ingredients were dry-mixed by hand and then H_2O was added to form a consistency of thick cream. On crowns the insulation was applied directly, on verticall walls wire notting was used in some cases. The preferred methods, not always followed, is to apply first a gas-impermeable layer, than a heat-insulating layer, and on top a sealing layer. Thegas-impermeable layer was made of ground Dinas 60, powdered asbestos 30, and refractory clay 10%. The dry mix was combined with 30% solution of water glass. This layer was ordinarily 3-8 mm. thick. The heat-insulating layer was up to 100mm. thick. The sealing layer was an aqueous suspension of

asbestos, its thickness 5-10 mm. The heat-insulating layer dries and where the temrorature is high, the sawdust burns out. The result is a light-weight (0.24-0.42 kg. per cu.m.), porous, monolithic product.

GAYDIN, I.

Financial organs of Stalingrad Province in the effort to fulfill the terms of the budget. Fin.SSSR 16 no.12:47-51 D '55.(MLRA 9:2)
(Stalingrad Province--Budget)

GAYDIN, I.

Important factor for increasing the activity of local soviets.
Visnyk AN URSR 28 no.3:51-52 Mr '57. (MLRA 10:5)

1.Zamestitel' zaveduyushchego Stalingradskim oblfinotdelom.
(Stalingrad Province--Budget)

GAYDIN, I.

Decentralize the control and auditing apparatus. Fin. SSSR 19 no.6:45-46 Je '58. (MIRA 11:6)

1. Zamestitel' zaveduyushchego Stalingradskim oblfinotdelom. (Auditing)

GAYDIN, I.

Increase the role of finance on collective farms. Fin.SSSR.
20 no.11:22-23 N '59. (MIRA 12:12)

1. Zaveduyushchiy Ivanovskim oblfinotdelom.
(Ivanovo Province--Collective farms--Finance)

GAYDIN, I.

There is a need for work coordination. Fin. SSSR 37 no.7:79-82 Jl '63. (MIRA 16:8)

1. Zaveduyushchiy Ivanovskim promyshlennym oblastnym finansovym otdelom.

(Ivanovo Province--Finance)

GAYDIN, Z.Z.

Experimental study and ways for the development of resorption refrigerating machines. Izv. vys. ucheb. zav.; pishch. tekh. no.6:96-101 '63. (MIRA 17:3)

1. Astrakhanskiy tekhnicheskiy institut rybnoy promyshlennosti i khozyaystva, kafedra kholodil'nykh mashin.

BLIYER, B.M., doktor tekhn. nauk, prof.; GAYDIN, Z.Z., inzh.

Cycles of resorptive and adsorptive refrigerating machines.
Izv. vys. ucheb. zav.; energ. 6 no.11:88-94 N'63.
(MIRA 17:2)

1. Astrakhanskiy tekhnicheskiy institut rybnoy promyshlennosti i khozyaystva. Predstavlena kafedroy kholodil'nykh mashin.

GAYDINA, G. A.

"The Role of the Higher Portions of the Central Nervous System in the Development of Fever." Cand Med Sci, Acad Med Sci USSR, 14 Dec 54. (VM, 25 Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

GAYDINA, G. A.

"The Role of the Higher Branches of the Central Nervous System in the Development of Experimental Fever," p. 200

Problema Reaktivnosti v Patologii, Medgiz, Moscow 1954, 344pp.

FRANKSHTEYN, Samuil Isayevich; Prinimali uchastiye: GORYUNOVA, T.I.; GAYDINA, G.A.

[Demonstration course in pathological physiology] Demonstratsionnyi kurs patologicheskoi fiziologii. Moskva, Medgiz, 1956. 290 p. (MIRA 13:8)
(PHYSIOLOGY, PATHOLOGICAL)

GAYDINA, G.A.; GORYUNOVA, T.I. (Moskva)

Correlation between temperature, cardiac rhythm, and respiratory changes in fever. Pat. fiziol. i eksp. terap. 3 no.3:38-43 My-Je '59. (MIRA 12:7)

1. Iz laboratorii sravnitel'noy patologii (zav. - prof. S.I. Frankshteyn) Instituta normal'noy i patologicheskoy fiziologii (dir. - deystvitel'nyy chlen AMN SSSR prof. V.N. Chernigovskiy).

(FEVER, experimental,
body-temperature, heart rhythm & resp. interrelationship (Rus))
(HEART, physiol.
rhythm, relation to body temperature & resp. in exper. fever (Rus))
(RESPIRATION, physiol.
relation to body temperature & heart rhythm in exper. fever (Rus))

GAYDINA, G.A. (Moskva)

Neural mechanisms of diuretic changes in fever. Pat.fiziol. i eksp. terap. 3 no.4:65-69 Jl-Ag '59. (MIRA 12:12)

1. Iz laboratorii sravnitel'noy patologii nervnoy sistemy (zav. - prof. S.I. Frankshteyn) Instituta normal'noy i patologicheskoy fiziologii AMN SSSR (dir. - deystvitel'nyy chlen AMN SSSR prof. V.N. Chernigovskiy).
(REFLEX, CONDITIONED)
(URINATION physiology)
(FEVER experimental)

GAYDINA, G.A. (Moskva)

Determination of the renal filtration rate with mannitol. Pat. fiziol.i eksp. terap. 4 no.4:85-87 Jl-Ag '60. (MIRA 14:5)

1. Iz laboratorii sravnitel'noy patologii (zav. - prof. S.I. Frankshteyn) otdela fiziologii i patologii nervnoy sistemy Instituta normal'noy i patologicheskoy fiziologii AMN SSSR.
(MANNITOL) (KIDNEYS)

FRANKSHTEYN, S.I.; GAYDINA, G.A.; GORYUNOVA, T.I.; SERGEYEVA, Z.N.; SMOLIN, L.N.

Mechanism of dyspnea in lung injury in the light of electrophysiological studies. Trudy Inst. norm. i pat. fiziol. AMN SSSR 6:102-104 '62 (MIRA 17:1)

1. Laboratoriya eksperimental'noy patologii nervnoy sistemy (zav. - prof. S.I.Frankshteyn) Instituta normal'noy i patologicheskoy fiziologii AMN SSSR.

GAYDINA, G.A.; MELKUMOVA, G.G. (Moskva)

Function of the kidneys in mercuric chloride poisoning before and after their denervation. Pat.fiziol. i eksp.terap. 7 no.2: 41-46 Mr-Ap'63. (MIRA 16:10)

1. Iz laboratorii eksperimental'noy patologii nervnoy sistemy (zav. - prof. S.I. Frankshteyn) Instituta normal'noy i patologicheskoy fiziologii (dir. - deystvitel'nyy chlen AMN SSSR prof. V.V.Parin) AMN SSSR.
(MERCURY—TOXICOLOGY) (KIDNEYS—INNERVATION)
(KIDNEY FUNCTION TESTS)

SMOLIN, L.N.; GAYDINA, G.A.

Changes in the electrical activity of the brain caused by pathologically changed tissues on the periphery. Pat. fiziol. i eksp. terap. 8 no.1:10-15 Ja-F '64. (MIRA 18:2)

1. Iz laboratorii sravnitel'noy patologii nervnoy sistemy (zav.- prof. S.I. Frankshteyn) Instituta normal'noy i patologicheskoy fiziologii (dir.- deystvitel'nyy chlen AMN SSSR prof. V.V. Parin) AMN SSSR.

GAYDOMOVICH, S YA

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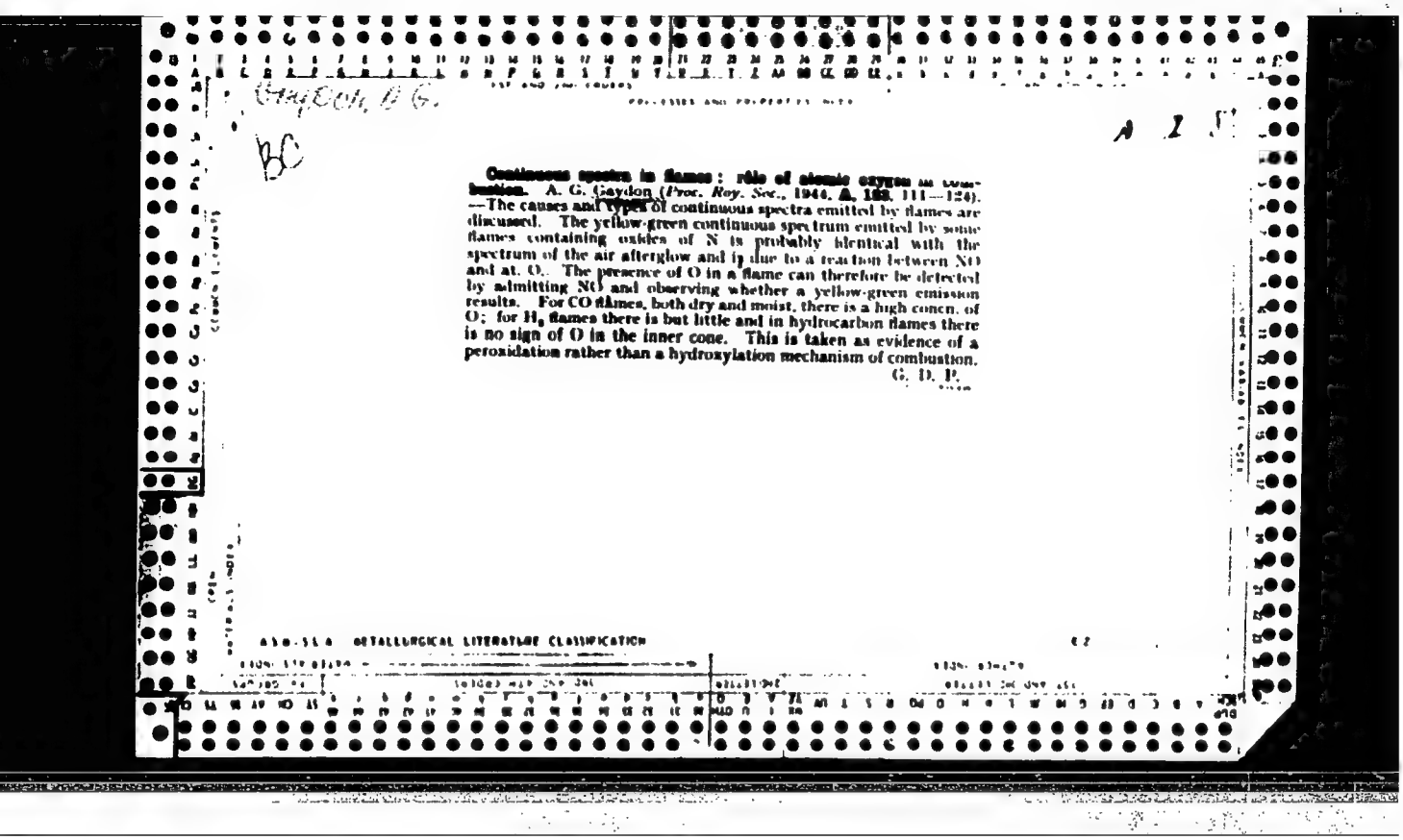
Kratkiy Kurs Prakticheskoy Virusologii (Breif Course of Virusology, by A. K. Shubladze i S. Ya. Gaydomovich. 2 Izd., Perer. i Dop. Moskva, Medgiz, 1954.
379 p. Illus., Diagrs., Ports., Tables.



Continuous spectra in flames: rôle of atomic oxygen in combustion. A. G. Gaydon (*Proc. Roy. Soc.*, 1946, **A**, **183**, 111—124).—The causes and types of continuous spectra emitted by flames are discussed. The yellow-green continuous spectrum emitted by some flames containing oxides of N is probably identical with the spectrum of the air afterglow and is due to a reaction between NO and at. O. The presence of O in a flame can therefore be detected by admitting NO and observing whether a yellow-green emission results. For CO flames, both dry and moist, there is a high concn. of O; for H_2 flames there is but little and in hydrocarbon flames there is no sign of O in the inner cone. This is taken as evidence of a peroxidation rather than a hydroxylation mechanism of combustion.

G. D. P.

Greyson, A.G.

PHASE I BOOK EXPLOITATION SOV/4257

Opticheskaya pirometriya plazmy; sbornik statey (Optical Pyrometry of Plasma; Collection of Articles) Moscow, Izd-vo inostrannoy lit-ry, 1960. 438 p. No. of copies printed not given.

Ed. (Title page): N.N. Sobolev, Professor; Ed. (Inside book): L.P. Yakimenko; Tech. Ed.: Ye. S. Artemova.

PURPOSE: This book is intended for scientists and students (at the university level) conducting research on methods of measuring the temperature of plasma.

COVERAGE: This is a collection of 24 articles dealing with the principles of plasma pyrometry, or more specifically, with the principles and methods of measuring the temperature of ionized gases (plasma). Twelve articles are translations from the English, 11 are from the German, and 1 is a review and summary by V.F. Kitayeva and V.N. Alyamovskiy of 7 Dutch and German works. It is pointed out in the introduction, written by Professor N.N. Sobolev, that despite the great interest in plasma pyrometry and the great number of individual articles written on the different measurement methods developed, there has been no general work or collection of articles summarizing and surveying

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GAYDOROV, L. P.

23380 Vzaimodeyatviye Khromovykh I Svl'fintsellyuloznykh Sokov Pri Kombini-- Rovannom Dublenii. Leg Prom-st', 1949, No. 6, c. 16-18; No. 7, c. 18-21. Bibliogr: 12 Nazv.

SO: LETOPIS NO. 31, 1949

GAYDOV, N.

BULGARIA/General Problems of Pathology - Allergy. T-2

Abs Jour : Ref Zhur - Biol., No 3, 1958, 12570

Author : Gaydov, N.

Inst : Not given

Title : Two Cases of Increased Sensitivity to PAS

Orig Pub : S"vrem. med., 1956, 7, No 7, 64-71

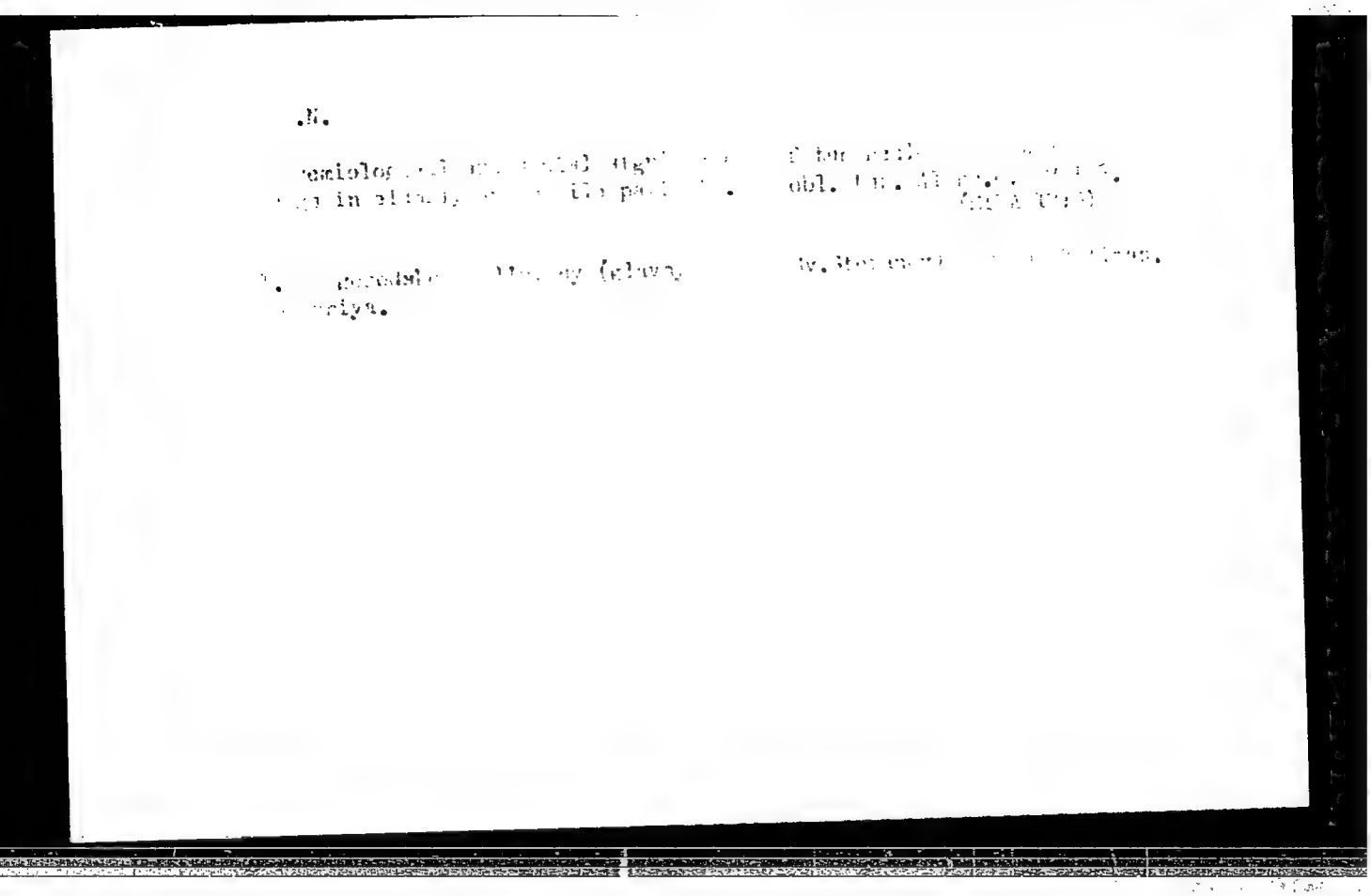
Abstract : Two cases of increased sensitivity to PAS and streptomycin are described in patients with pulmonary tuberculosis. After administration of 7 g of streptomycin and 840 tablets of rimifon with PAS, one female patient developed an allergic reaction that lasted for 7 days. Another patient had an allergic reaction following the administration of PAS. Symptomatic treatment was used and the patients were desensitized by small doses of these drugs.

Card 1/1

GAYDOV, N.; NACHEV, V.

Reticulosislike reaction in chronically running primary tuberculosis in an adult. Probl. tuberk. 41 no.2:76-77 '63 (MIRA 17:2)

1. Iz okruzhnoy bol'nitsy i okruzhnogo protivotuberkuleznogo dispansera Khaskovo, Bolgariya.



[redacted] Stomach [redacted] Virus Diseases (Data)," Candidate Dissertation, Tashkent State Medical Inst, Tashkent, 1953. (Referativnyy Zhurnal Biologicheskaya Khimiya, No 2, Sep 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

SO: Sum. No. 481, 5 May 55

ALIMOV, V.A., kand.med.nauk; GAYDOVA, Ye.S., kand.med.nauk

Mortality from tumors as shown by data of the Autopsy Department of the Clinic of the Tashkent Medical Institute from 1946-1955. Med.zhur.Uzb. no.6:35-39 Je '58. (MIRA 13:6)

1. Iz kafedry patologicheskoy anatomii (zav. - prof. G.N. Terekhov) Tashkentskogo gosudarstvennogo meditsinskogo instituta.

(CANCER--MORTALITY)

ACCESSION NR: AT4042722 S/0000/63/000/000/0510/0514

AUTHOR: Yarmonenko, S. P.; Kurlyandskaya, E. B.; Avrunina, G. A.; Gaydova, Ye.S.; Govorun, R. D.; Orlyanskaya, R. L.; Paly*ga, G. F.; Ponomareva, V. L.; Fedorova, V. I.; Shmakova, N. L.

TITLE: Reactions to radiation and chemical protection of animals subjected to the effects of high-energy protons

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy* konferentsii. Moscow, 1963, 510-514

TOPIC TAGS: corpuscular radiation, high energy proton, synchrocyclotron, gamma ray, radiation effect, radioprotective agent, RBE

ABSTRACT: Experiments were performed to determine the immediate and the delayed effects of high-energy protons and their RBE on animal organisms. High-energy protons of 660 Mev were generated on a syncrocyclotron. Comparative tests using gamma rays from a Co^{60} source were used in establishing the RBE. Nonpure strain mice and rats were used, in addition to mice of the BALB and C-57Bl strains.

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All materials were subjected to statistical analysis. In comparative experiments performed on rats subjected to a dose of 500 rad, the degree of injury to hemopoietic organs by protons was considerably less than injury caused by gamma radiation. The depression of hemopoiesis in the bone marrow and the spleens of animals irradiated by protons was less profound and less prolonged, and regenerative processes began earlier than in injuries produced by produced by gamma rays. This difference of effect was particularly clear in the dynamics of the peripheral blood. After exposure to gamma irradiation, a profound and prolonged anemia developed, accompanied by a loss of 44% of the erythrocytes and 51% of the hemoglobin. An equivalent dose of protons caused only insignificant lowering of these indices. Similar effects were observed in the white blood corpuscles, particularly in respect to neutrophiles. The results obtained confirm that the condition of peripheral blood does not reflect the true depth of radiation damage to hemopoiesis. In experiments with white mice, a study was made of early destructive changes in the brain marrow, the dynamics of mitotic activity, and the kinetics of cells with chromosomal injuries. Exposure to protons induced typical radiation degeneration of cells of the bone marrow, a slowing down of mitotic activity, and injuries to the chromosomes. A strong linear relationship of injury-to-dose was

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ACCESSION NR: AT4042722

observed in all three indices within the 250--1000 rad range. Exposure to equivalent doses of gamma rays produced more pronounced changes, indicating that the RBE of protons is equivalent to 0.5--0.7. Preliminary administration of radioprotective agents -- AET (S,β-aminoethylisothioronium), MEA (mercaptoethylamine), and 5-MOT(5-methoxytryptamine) -- diminished the number of degenerating and aberrant cells in the bone marrow in proportion to the effect of the indicated drugs on survival. The most effective appeared to be a combination of MEA and 5-MOT, whose use assured the survival of 50% of the mice when irradiated by doses of 1900 rad. If irradiation is fractionated, the protective effect of the drugs is reduced sharply, or it disappears altogether. In experiments on male mice of the BALB strain subjected to doses of 500 and 700 rad, reversible changes were observed in the weight of testicles. The change of weight and its subsequent recovery was due to the death and the subsequent regeneration of germ cells. Protons have a typical sterilizing effect on the genitalia, but their RBE, in comparison with gamma rays, lies between 0.6 and 0.7. The use of antiradiation drugs did not prevent the sterilizing action of protons, but it caused a somewhat smaller loss of weight of the testicles and produced a shorter period of sterility. White male mice which had been protected by AET, MEA, 5-MOT, and cystamine from the effects of proton doses of 1300--1600 rad recovered their generative functions

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ACCESSION NR: AT4042722

almost completely four to seven months after irradiation. The development of the first generation of 290 mice obtained by crossing the protected and irradiated males with intact females took place without visible somatic injuries. The relative effectiveness of protons and gamma rays in causing somatic mutations was studied on livers of white rats who were subjected to doses of 150 rad. Regeneration of the liver was induced by removing the large left and the front right lobes of the liver. The operation was performed 24 hours after irradiation. The animals were killed 30 hours after the operation, i. e., during the first wave of the increase of mitotic activity. Control animals had 6.9% of aberrant cells, while after irradiation by protons and gamma rays, the number of aberrant cells was 20% and 29%, respectively. This indicates that the RBE of protons in respect to somatic mutations is around 0.7. New data were obtained on the blastomogenic effect of protons. Out of 85 irradiated rats, tumors were found in 39. Twenty-five of them had multiple tumors in various locations. In experiments on non-pure strain white mice, it was possible to show that antiradiation drugs, while increasing the ratio resistance of the animals, do not prevent subsequent development of new growth. Out of 65 irradiated mice who died at various periods after exposure to protons in doses from 1300 to 1500 rad (after having previously received antiradiation protection), fourteen had leucosis and four had sarcoma.

Card 4/5

FILATOV, P.P.; GAYDOVA, Ye.S.

Some immunopathological problems associated with the chronic influence of radioactive zinc (Zn^{65}) on the organism. Vest. AMN SSSR 20 no.9:65-70 '65.

(MIRA 18:11)

1. Institut meditsinskoy radiologii AMN SSSR, Obninsk, i Institut gigiyeny truda i professional'nykh zabolevaniy AMN SSSR, Moskva.

L 3663-66 EWT(m) DIAAP

ACCESSION NR: AP5015731 UR/0205/65/005/003/0393/0401
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AUTHOR: Gaydova, Ye. S.; Ivanov, V. N.; Yarmonenko, S. P.

TITLE: Cytological analysis of high-energy proton effects.[19] 5. Comparative data on the effects of 660-Mev protons and cobalt-60 gamma rays on testes

SOURCE: Radiobiologiya, v. 5, no. 3, 1965, 393-401

TOPIC TAGS: high energy proton, biological effect, mouse, cytology, radiosensitivity, RBE, spermatogenesis

ABSTRACT: Experiments were conducted on half-grown male mice of the BALB line, whose radiosensitivity was high, and on normal white male rats. General and local irradiation of the testes of normal mice with a dose of 400 rad decreased the weight of the testes and severely inhibited spermatogenesis. The greatest effects were observed 28—30 days after irradiation. However, not all germ cells were destroyed, and recovery began to take place after 40 days with nearly complete recovery by the 60th day. Animals were irradiated with 160-Mev protons in the OIYAI synchrocyclotron with a mean dose of 250—300 rad/min. Cobalt-60 gamma irradiation took place in a GUBE-800 apparatus at a mean dose of 300 rad/min. The animals were killed 10,

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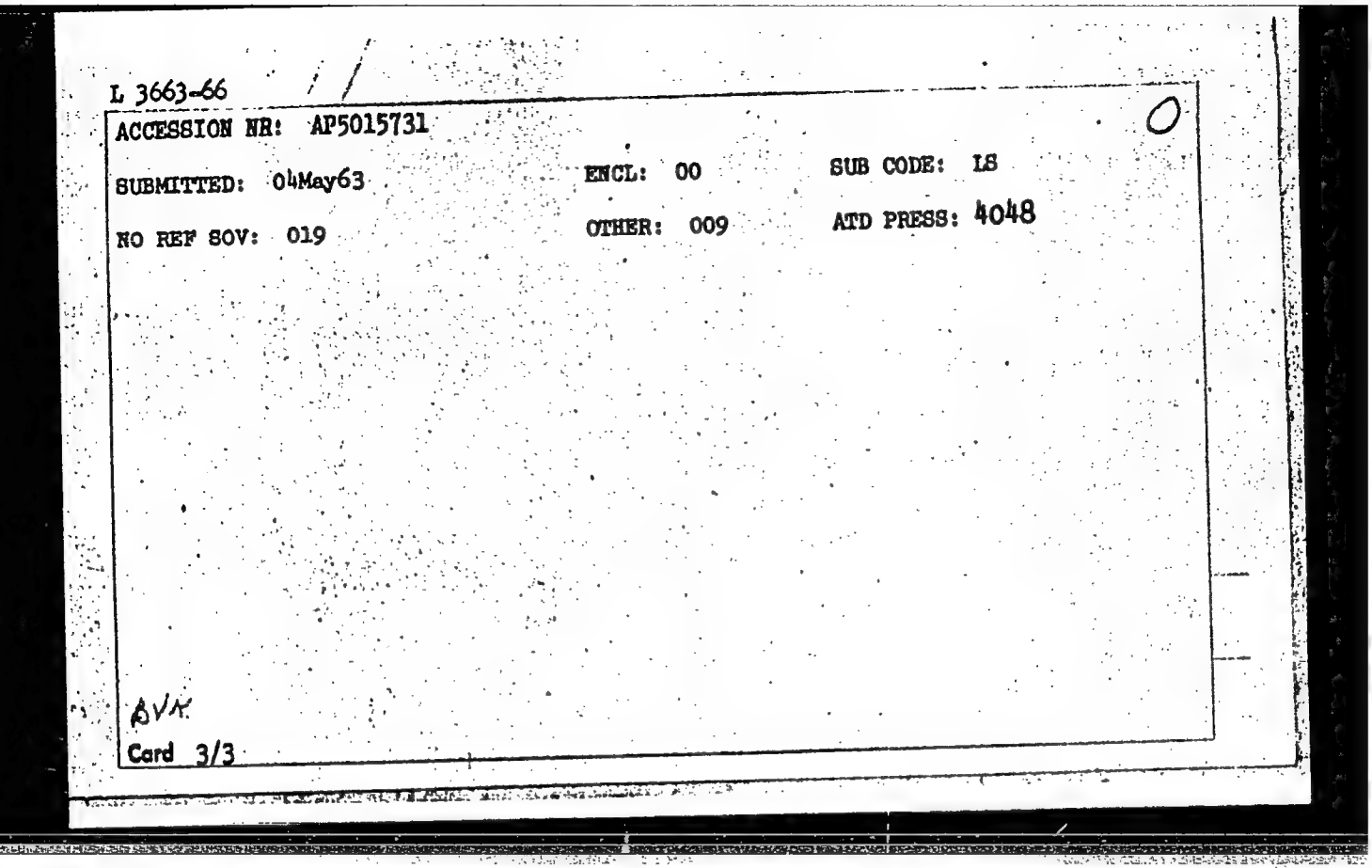
20, 40, 60, and 90 days after irradiation, whereupon the testes were fixed for accurate cytological and statistical tests. As a control factor, the effects of protons and gamma rays on other radiosensitive organs were evaluated by measuring the change in weight of the spleens of mice. Of 70 mice irradiated with a proton dose of 500 rad, 7 died, while 25 of 90 died when irradiated with a 700-rad dose. Exposure to the same doses of gamma rays killed 40 of 110 and 170 of 210 animals, respectively. The control group was made up of 400 animals. In general, 660-Mev protons and gamma rays produced reversible changes in the weight of BALB mice testes at doses of 500—700 rad, and of normal rat testes at 250 rad. Radiation caused the destruction and subsequent regeneration of functional cellular elements. Protons in a dose of 685 rad or gamma rays in a dose of 430 rad produced about the same loss of reproductive ability in the majority of animals for 6 months after irradiation, followed by later recovery. The effect of 660-Mev protons in the testes of mice and rats was less than the effect of gamma rays. The RBE of protons calculated at the time of a 50-percent recovery in mouse testicular weight was 0.6—0.7. Orig. art. has: 3 tables and 6 figures. [CD]

ASSOCIATION: Institut gigiyeny truda i profzabolevaniy AMN SSSR, Moscow (Institute of Industrial Hygiene and Occupational Diseases, AMN SSSR)

Card 2/3



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ACCESSION NR: AP5015731

SUBMITTED: 04May63 ENCL: 00 SUB CODE: LS

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Card 3/3

L 14160-66 EWA(b)-2/EWA(j)/EWT(1)/EWT(m)/T JK
ACC NR: AP6001321 SOURCE CODE: UR/0248/65/000/009/0065/0070

AUTHOR: Filatov, P. P.; Gaydova, Ye. S.

ORG: Institute of Medical Radiology, AMN SSSR, Obninsk (Institut meditsinskoy radiologii AMN SSSR); Institute of Labor Hygiene and Occupational Diseases, AMN SSSR, Moscow (Institut gigiyeny truda i profzabolevaniy AMN SSSR)

TITLE: Some aspects of the immunopathology of animals chronically exposed to radioactive zinc (Zn^{65})

SOURCE: AMN SSSR. Vestnik, no. 9, 1965, 65-70

TOPIC TAGS: zinc, immunology, radiation damage, radioisotope, antigen, pathogenesis, gamma globulin

ABSTRACT: Daily peroral administration of $Zn^{65}C_2$ (10 μc per kg of weight) to rabbits for 18 months significantly altered the animals' antigen structure and protein fractions and brought about morphological changes in various tissues. Antibodies against homologous denatured protein clearly appeared during the 9th month. At the same time there was a marked decrease in the serum albumins while the quantity of

UDC: 617-001.27-07 : 616-018-097-092.9

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gamma and beta globulins increased and the albumin-globulin ratio underwent phasic changes--all suggestive of dysglobulinemia. Tissue changes in the hematopoetic organs included hyperplasia of the reticuloendothelial elements, increase in the number of foci of extramedullary hematopoiesis in the spleen, lymp nodes, and lungs, and enlargement of staff and band cells in bone marrow. Degenerative changes were noted in the liver, kidneys, thyroid, and gonads. Signs of radiation lesions appeared between the 16th and 18th months. Rabbits given smaller doses of Zn^{65} exhibited the same immunological and morphological changes as those receiving the 10 μc/kg dose but they were less pronounced. Autoimmunological mechanisms play a major role in the pathogenesis of chronic radiation damage. Orig. art. has: 1 figure.

SUB CODE: 06/ SUBM DATE: 05Jun65/ ORIG REF: 023/ OTH REF: 004

Card 2/2

[redacted]; BOGINA, A.V., redaktor; KAZAKOVA, V.Ye., tekhnicheskiy redaktor

[Hero of the Soviet Union, Ivan Golubets] Geroi Sovetskogo Soiuza Ivan Golubets. Moskva, Voen. izd-vo Ministerstva obor. Soiuza SSR, 1954. 87 p. (MLRA 8:3)
(Golubets, Ivan Karpovich, 1916-1942)

ZABOLOTSKIY, F.D.; GAYDOVSKIY, V.M., redaktor; KOVALIKHIN, N.F., tekhnicheskiy redaktor.

[New machines and devices for making road surfaces by mixing materials on the road] Novye mashiny i prisposobleniia dlia obrabotki pokrytii sposobom smesheniia na doroge. Moskva, Avtotransizdat, 1953. 35 p. (MLRA 7:5)

(Mixing machinery) (Road machinery)

GAYDOVSKIY, Vsevolod Mikhaylovich; USPENSKIY, B.V., redaktor; GALAKTIONOVA, Ye.N., tekhnicheskiy redaktor

[Double quotas per shift with the DKA-0,25 excavator; experience of Innovator N.N.Pavlov of the White Russian Highways Administration] Dve normy v smenu na ekskavatore DKA-0,25; iz opyta rabochego-novatora Uzhosdora BSSR N.N.Pavlova. Moskva, Nauchno-tekhn. izd-vo avtotransp. lit-ry, 1956. 18 p. (MLRA 9:12)
(Excavating machinery)

KALNYKOV, A., rabochiy-obrubshchik (Stalingrad); NURULLAYEV, S. (Baku); MAVLYUTOVA, R.; SHCHEBLANOV, N.; SAVENKOV, P.; TIMOFEYEVA, R.; CHICHIKINA, N.; LYAMTSEV, V.; ROMANENKO, N. (Krasnoyarskiy kray); SUKHORUKOV, Ya.; GAYDRIK, P. (g.Gor'kiy); KALNYKOV, A. (Kostroma).

Letters to the editors. Sov. profsoiuzy 17 no. 3:42-47 F '61. (MIRA 14:2)

1. Direktor sredney shkoly No. 17, Chelyabinsk (for Mavlyutova). 2. Predsedatel' Belgorodskogo obkoma profsoyuza rabochikh pishchevoy promyshlennosti (for Shcheblanov). 3. Predsedatel' prezidiuma postoyanno deystvuyushchego proizvodstvennogo soveshchaniya tsekha kholodnoy shtampovki zavoda "Rostsel'mash" (for Savenkov). 4. Sekretar' Oymyakonskogo raykoma profsoyuza rabochikh. (Trade unions)

VOROB'YEVA, V.; GAYDRIK, P.; KOVALEVA, M.; SHMAKOVA, A.

How are decisions of the presidium of the All-Union Council of Scientific and Technological Societies carried out. NTO 5 no.6: 27-30 Je '63. (MIRA 16:9)

1. Starshiy instruktor Gor'kovskogo oblastnogo soveta professional'nykh soyuzov (for Vorob'yeva). 2. Instruktor Gor'kovskogo Oblastnogo soveta professional'nykh soyuzov (for Gaydrik). 3. Uchenyy sekretar' Gor'kovskogo oblastnogo pravleniya Nauchno-tekhnicheskogo obshchestva lesnoy promyshlennosti i lesnogo khozyaystva (for Kovaleva). 4. Spetsial'nyy korrespondent zhurnala "Nauchno-tekhnicheskiye obshchestva SSSR" (for Shmakov).

TULENKOV, K.I., inzh.; GAYDUCHENKO, B.I., inzh.

Effect of residual stresses in wire on the efficiency of wire rope. Stal' 23 no. 3:280-281 Mr '64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut metiznoy promyshlennosti i Magnitogorskiy gornometallurgicheskiy institut.

TULENKOV, K.I.; PETRUKHIN, S.I.; GAYDUCHENKO, B.I.

Analyzing the distribution of residual stresses in rope wire.
Izv. vys. ucheb. zav.; chern. met. 7 no.10:98-102 '64.
(MIRA 17:11)

1. Magnitogorskiy gornometallurgicheskiy institut.

GAYDUCHENKO, B.I.; TULENKOV, K.I.; PETRUKHIN, S.I.

Effect of additional treatment on the internal stresses in rope wire. Izv.vys.ucheb.zav.; chern.met. 8 no.6:108-112 '65. (MIRA 18:8)

1. Magnitogorskiy gornometallurgicheskiy institut.

S/181/62/000/001/003/0[illegible]
D041/D113

AUTHORS: Gayduchenko, G.K and Fedoreva, M.M., Engineers

TITLE: Cracking of LO62-1 and L62 brass due to corrosion

PERIODICAL: Khimicheskoye mashinostroyeniye, no. 1, 1962, 22-1[illegible]

TEXT: The authors describe tests with ЛО62-1 (LO62-1) and [illegible] specimens conducted at the "Bol'shevik" zavod (Plant), in order to determine the effect of residual stresses on the tendency of the specimen to crack due to corrosion. For this purpose, 22 mm thick sheets were welded and subsequently bent on rolls. After tests in ammonia vapor, all specimens showed cracks. The effect of various types of mechanical treatment (grinding, planing, etc.) on the cracking of brass due to corrosion was also investigated and analogous results obtained: ammonia vapor caused thin cracks on the surface of all specimens. It was concluded that, in order to eliminate residual stresses, the L62 and LO-62-1 brass specimens should be annealed at 300°C for 2 - 3 hours after all types of mechanical treatment and welding. There are 3 figures and 2 Soviet-bloc references.

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RUDNAYA, A.I., kand.tekhn.nauk; GAYDUCHENKO, N.I.; BUTUSOV, I.V.

Pickup for measuring temperatures in mixing devices. Avtom.i prib. no.3:83 Jl-S '62. (MIRA 16:2)

1. Institut avtomatiki Gosplana Ukr.SSR.
(Thermocouples)

RUDNAYA, A.I., inzh.; GAYDUCHENKO, N.I., inzh.; ROMANYUK, N.A., inzh.

Measuring the temperature of magnesium alloys during the melting in induction furnaces. Mashinostroenie no. 2:48-50 Mr-Ap '64. (MIRA 17:5)

VERBUK, R.M.; GAYDUCHENKO, N.P.; KRIVOKOBYL'SKIY, V.F.; POLYAKOV, M.L.; CHICHEVA, L.I., red.; TRUKHINA, O.N., tekhn. red.; OKOLELOVA, Z.P., tekhn. red.

[Dismantling, assembly and repair of SMD engines] Razrabotka, sborka i remont dvigatelei SMD. Moskva, Sel'khozizdat, 1963. 174 p. (MIRA 16:9)
(Diesel engines--Maintenance and repair)

GAYDUCHENKO, S.S., kandidat tekhnicheskikh nauk.

Construction of reinforced concrete silos for the cement industry. TSement 19 no.5:26 S-O '53. (MLRA 6:10)
(Silos) (Reinforced concrete construction)

TARNAVSKIY, A.L., kand. tekhn. nauk; GAYDUCHENKO, V.I., inzh.

Making thin shaped wire with a roller draw die. Stal' 23 no.10: 951-953 O '63. (MIRA 16:11)

1. Magnitogorskiy nauchno-issledovatel'skiy institut metiznoy promyshlennosti.

BERGER, I., kand.ekonomicheskikh nauk (Kiyev); GAYDUCHENYA, A., arkhitektor (Kiyev)

Stores should be distributed correctly. Sov. torg. 34 no.8:34-38 Ag '61. (MIRA 14:8)

(Stores, Retail)

ZEN'KOVICH, G. [Zen'kovych, H.], kand.arkhitektury; GAYDUCHENYA, O. [Haiduchenia, O.], arkhitektor; SAMSONOVA, T., arkhitektor

Community center in a new village. Sil'. bud. 11 no.8:15-16 Ag '61. (MIRA 14:9)

(Chornobaivka—Community centers)

POGREBNYAK, P.S.[Pohrebniak, P.S.], akademik; GAYDUCHOK, A.[Haiduchok, O.], red.; RIBKA, V.B.[Rybka, V.B.], red.; KLOKOVA, S.M., tekhn. red.

[Let rustling forests cover our land] Khai shumyt' zemla haiamy. Kyiv, Molod', 1961. 88 p. (MIRA 15:7)

1. Akademiya nauk USSR, predsedatel' Ukrainskogo obshchestva po okhrane prirody (for Pogrebnyak).
(Ukraine—Forests and forestry)

SHCHURIK, Grigoriy Leont'yevich [Shchuryk, Hryhorii]; GAYDUCHOK, G.A. [Haiduchok, H.A.], red.; KLOKOVA, S.M., tekhn.red.

[Our wings] Nashi kryla. Kyiv, Vyd-vo TsK LKSMU "Molod'," 1960. 19 p. (MIRA 13:12)
(Novo-Georgiyevskiy District--Agriculture)

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[Sourse of high milk yields] Dzherelo rik molochnykh. Kyiv, Vyd-vo TsK LKSMU "Molod'," 1961. 22 p. (MIRA 15:7)
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GAYDUK, A.

A powerful construction base for the Western Siberian Metallurgical Plant is being created. Na stroi. Ros. 3 no.2:7-9 F '62. (MIRA 16:2)

1. Nachal'nik upravleniya stroitel'stva Zapadno-Sibirskogo metallurgicheskogo zavoda.
(Siberia, Western—Metallurgical plants)
(Siberia, Western—Construction industry)

BESSER, Ya.R., inzhener.; GAYDUK, A.K.

Making precast concrete foundation blocks in construction yards. Mov. tekh. i pered. op. v stroi. 18 no.5:7-10 My '56. (MLRA 9:12)
(Foundations) (Precast concrete construction)

SKURATOVSKIY, Ya., inzh.; GAYDUK, A., inzh.

Constructing large-panel apartment houses in Chelyabinsk. Zhil. stroi. no.12:7-9 '60. (MIRA 13:11)
(Chelyabinsk--Apartment houses)
(Precast concrete construction)

GORYUSHIN, V.A.; KOKHNA, M.A.; GAYDUK, A.P.

Effect of the virus ragwort on the harvest and processing quality of sugar beets. Sakh.prom. 34 no.9:58 S '60. (MIRA 13:9)

1. Institut mikrobiologii AN USSR (for Goryushin). 2. Gruppovaya laboratoriya pri Khodorovskom sakharnom zavode (for Kokhan, Gayduk).
(Sugar beets—Diseases and pests)

CHOPIK, V.I.; KOKHAN, M.A.; GAYDUK, A.P.

More on purification of juices with bentonites. Sakh. prom. 35 no.8:21-23 Ag '61. (MIRA 14:8)

1. Proyektno-konstruktorskiy tekhnologicheskiy institut L'vovskogo sovnarkhoza (for Chopik). 2. Khodorovskaya gruppovaya laboratoriya (for Kokhan, Gayduk).
(Sugar manufacture) (Bentonite)

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SOV/109-5-2-9/20

AUTHOR: Gayduk, B. I.

TITLE: On the Calculation of Induced Current Caused by Arbitrary Movement of Charged Particles

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 2, pp 239-254 (USSR)

ABSTRACT: Proceeding from the theorem of Ramo-Shockley for induced current of a single charge, equations for induced current are developed for arbitrary movements of charged particles steadily introduced into the system. These expressions are simple if the particles do not overtake others at the output of the system (see Eq. 3). For overtaking movements Fourier components can be used per Eq. (11) and (16) for periodic or aperiodic systems, respectively. These conclusions can also be applied to the density of charges and density of convection currents, and in general to additive influences of any objects, so long as the influence of any single object is known. As an example, idealized circuits of a generator

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with delaying field and a monotron are analyzed, and their electronic coefficients of efficiency and harmonics of the induced current are found. It is shown that the first system has pronouncedly higher efficiency for completely identical basic characteristics and corresponding mathematical expressions. Introduction. Existing formulas were developed for straight electron movements at equal speeds. There obviously are no formulas considering arbitrary movements of electrons and their successive escape from the system. In order to determine the excitation of electromagnetic fields by given sources, it is of interest to determine also the densities of charge and current. (1) Initial Assumptions and Statement of Problem. (a) The delay of electromagnetic potentials in the system is ignored. In accordance with the Ramo-Shockley theorem, a charge q, moving in the conductor system A, B...., induces in a conductor (e.g., A) the current:

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$$I_{An}^{q} = q\,\mathbf{vE}, \qquad (1)$$

where $\mathbf{v} = \mathbf{v}(t)$ is charge velocity; $\mathbf{E} = \mathbf{E}(x,y,z)$ is static field intensity at the location of charge q, induced by the single potential applied to conductor (A), while all other conductors are grounded (B,....); $\mathbf{E}(x,y,z)$ is determined after escape of charge q from the system. Index A will be omitted further on. It is assumed that the electrons enter the system continuously through a point size area, and the current at input is $I(\tau)$, where $t = \tau$ is time moment of electron entrance into the system. The current induced at the arbitrary moment t by the point charge $dq = I(\tau)d\tau$ is:

$$I_{n}^{dq} = I(\tau)\,d\tau\,\mathbf{v}(\tau, t)\,\mathbf{E}(\tau, t). \qquad (2)$$

It is considered in this equation that the charge dq velocity depends on the time τ of the input; the field $\mathbf{E}(x,y,z)$ is expressed as function of τ and t by the charge motion law dq: $x = x(\tau, t)$, etc.

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(b) Assuming the electrons leave the system in the same sequence as they entered (the motion inside the system being arbitrary), the current induced by all charges of the system at moment t is given by the integral:

$$I_u(t) = \int_{t_0}^{t} I(\tau')\, v(\tau', t)\, E(\tau', t)\, d\tau'. \qquad (3)$$

The influence of all electrons which entered the system in the transit time (T_τ) of the τ-electron begins at moment τ and ends at $t = \tau + T(\tau)$. This formula, however, is not correct if a part of the electrons is "screened out," or overtakes others at the output. A more exact formula for these conditions would be:

$$I_u(t) \quad \sum_{i} \int_{\tau_i}^{\tau_{i+1}} \Phi(\tau', t)\, d\tau' \qquad (4)$$

$\Phi(\tau', t)$ is the integrand (3). The summation must be made here for those time intervals $\tau_1(t)$, $\tau_{1+1}(t)$ of the electron entrance time which correspond to the electrons present in the system at the given moment t. This is a difficult task; the next two paragraphs will indicate a way to surmount these difficulties. (2) Harmonic Expansion of the Induced Current. (a) The case when the induced current is a periodic function, which can be expressed by an expanded Fourier series:

$$I_n(t) = \frac{I_{20}}{2} + \sum_{k=1}^{\infty} (I_{1k} \sin k\omega t + I_{2k} \cos k\omega t). \qquad (5)$$

This is only possible if there is a time interval $T_o = 2\pi/\omega$, through which the momentarily present distribution of charges is repeated again. Therefore, in (2) the condition:

$$I_{\text{н}}^{\text{пр}}(\tau + T_0, t + T_0) = I_{\text{н}}^{\text{пр}}(\tau, t). \tag{6}$$

must be satisfied, which is possible also for a non-periodic movement of particles. If there is no overtaking of slower electrons at the output of the system, and the induced current can be considered a periodic function of the electron entrance time, from (3) can be deduced:

$$\begin{matrix} I_{1k} \\ I_{2k} \end{matrix} = \frac{1}{\pi} \int_0^{2\pi} \begin{matrix} \sin \\ \cos \end{matrix} k\omega t d\omega t \int_{\tau}^{\tau + T(\tau)} \Phi[\tau', \tau + T(\tau)]\, d\tau'. \tag{7}$$

Here, the induced current is assumed to be a function of τ, and sin k ω t is used for I_{1k}, but cos k ω t for I_{2k}. (b) If overtaking of slower electrons takes place, the induced current can be expressed by a Fourier series at the output. Figure 1 shows the distribution of charges in the system at moment t_1 ($\tau_1 = t_1$):

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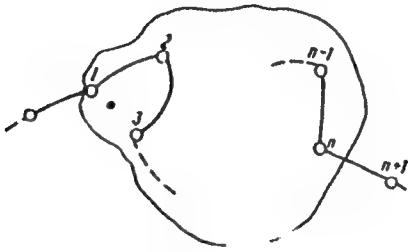

Fig. 1

The current induced by the discrete succession of charges dq_i ($i = 1,2,...n$) is a periodic function of t. After the lapse of one period, the n-th charge will leave the system, and a new one will enter. The Fourier series may be written as:

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$$i_n = \frac{i_{10}(\tau_1)}{2} + \sum_{k=1}^{\infty} [i_{1k}(\tau_1) \sin k\omega t + i_{2k}(\tau_1) \cos k\omega t], \tag{8}$$

where

$$\begin{matrix} i_{1k} \\ i_{2k} \end{matrix} = \sum_{i=1}^{n} I(\tau_i)\, d\tau_i \frac{2}{T_0} \int_{\tau_i}^{\tau_i + T_0} \mathbf{E}(\tau_i, t')\, \mathbf{v}(\tau_i, t') \begin{matrix} \sin \\ \cos \end{matrix} k\omega t'\, dt'. \tag{9}$$

Taking the movement of the charges into consideration, Eq. (9) can be rewritten as:

$$\begin{matrix} i_{1k} \\ i_{2k} \end{matrix} = I(\tau_1)\, d\tau_1 \frac{1}{T_0} \int_{\tau_1}^{\tau_1 + T(\tau_1)} \mathbf{E}(\tau_1, t')\, \mathbf{v}(\tau_1, t') \begin{matrix} \sin \\ \cos \end{matrix} k\omega t'\, dt'. \tag{10}$$

The summation of these currents leads to:

$$\begin{matrix} I_{1k} \\ I_{2k} \end{matrix} = \frac{1}{\pi} \int_{0}^{2\pi} I(\tau)\, d\omega\tau \int_{\tau}^{\tau + T(\tau)} \mathbf{E}(\tau, t')\, \mathbf{v}(\tau, t') \begin{matrix} \sin \\ \cos \end{matrix} k\omega t'\, dt'. \tag{11}$$

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which is modified as follows:

$$\begin{matrix} I_{1k} \\ I_{2k} \end{matrix} = \frac{1}{\pi} \int_0^{2\pi} I(\tau)\, d\omega\tau \int_A^B \begin{matrix} \sin \\ \cos \end{matrix} k\omega t\,(\tau, x, y, z)\, \mathbf{E}\, ds, \qquad (12)$$

Now the series (5) can be calculated, using Eq. (11) for the coefficients $I_{1,2k}$. Notations in (12) are:

ds = path element of the τ-electron ($ds = \mathbf{v}(\tau, t)dt$) which at moment t is located at point x,y,z ($t = t(\tau, x, y, z)$), but A and B are starting and end points of its trajectory, respectively. The physical meaning of (12) is: The amplitude of the induced current harmonics is the potential difference in the static field E through which the τ-charge falls, averaged over the period for all τ-charges. (c) A specific case is analyzed, where the electrons move along arbitrary trajectories, but the points A and B are the same for all electrons in the system. The constant component of the induced

current $I_{20}/2$ (for I_{2k} at $k = 0$), the inner integral of (12) is independent of the path shape, i.e., in this case of τ, and from (12) it follows that:

$$\frac{I_{20}}{2} = \bar{I}(U'_A - U'_B),$$

where $\bar{I}$ is average current entering the system during period T_0.

$$\bar{I} = \frac{1}{T_0}\int_0^{T_0} I(\tau)\,d\tau;$$

U'_A, U'_B are potentials generated by field $\mathbf{E}(x,y,z)$ at points A and B. In cases where A and B coincide (i.e., some systems with retarding fields), $I_{20} = 0$. If all electrons follow the same constant trajectory S on the length L, Eq. (12) gives:

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$$\begin{matrix} I_{ik} \\ I_{sk} \end{matrix} = \frac{1}{\pi} \int_0^l E_s(s)\,ds \int_0^{2\pi} I(\tau) \begin{matrix} \sin \\ \cos \end{matrix} k\omega t(s,\tau)\,d\omega\tau, \quad k = 0, 1, \ldots \qquad (13)$$

where s is path length; E_s, tangent component of field intensity. The simplest case of such fields is the flat homogeneous condenser space. (2) General Analysis, Calculation of Charge and Current Densities. For arbitrary values of all terms in Eq. (2) as functions of τ and t, where the conditions (C) may also be unsatisfied, the summary influence of all additives caused by moving particles is designated by G(t) (summary induced current in the present case), and can be expressed as an integral over all τ , which is valid for all conditions:

$$G(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} d\tau \int_{-\infty}^{\infty} e^{-i\omega t}\,d\omega \int_{\tau}^{\tau+T(\tau)} g(\tau, t')\,e^{i\omega t'}\,dt'. \qquad (14)$$

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If G is an aperiodic function of t, and the inner integral of (14) is a function of τ diminishing in a satisfactory manner at infinity, Eq. (13) can be transformed into a Fourie integral:

$$G(t) = \int_{-\infty}^{\infty} g_\omega e^{-i\omega t}, \quad g_\omega = \frac{1}{2\pi} \int_{-\infty}^{\infty} d\tau \int_{\tau}^{\tau+T(\tau)} g(\tau, t') e^{i\omega t'} dt',$$

the components of which g_ω can now be determined by a simple analytical expression. Now the Fourier integral for the induced current will be:

$$I_n(t) = \int_0^{\infty} [I_{1\omega} \sin \omega t + I_{2\omega} \cos \omega t] d\omega, \tag{15}$$

where

$$\begin{matrix} I_{1\omega} \\ I_{2\omega} \end{matrix} = \frac{1}{\pi} \int_{-\infty}^{\infty} I(\tau) d\tau \int_{\tau}^{\tau+T(\tau)} E(\tau, t') v(\tau, t') \begin{matrix} \sin \\ \cos \end{matrix} \omega t' dt'. \tag{16}$$

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Equation (14), being of the general type, describes also the case of a periodic dependence of G on time, and can be represented by a series analogous to (7) with coefficients (11):

$$G(t) = \sum_{k=-\infty}^{\infty} C_k e^{ik\omega t},$$

$$C_k = \frac{1}{T_0} \int_{-T_0/2}^{T_0/2} d\tau \int_{\tau}^{\tau+T(\tau)} g(\tau, t') e^{-ik\omega t'} dt'. \qquad (14a)$$

The density of charge ρ^{Π}_{M} and of the convection current j^{Π}_{M} from (14a) after transformation as:

$$\rho^{\Pi}_{M} = \sum_{k=-\infty}^{\infty} \rho^{\Pi}_{k} e^{ik\omega t}; \quad \rho^{\Pi}_{k} = \frac{d\tau}{T_0} \rho(\tau) \frac{v(\tau)}{v(\tau, t_M)} e^{-ik\omega t_M} \quad (\text{for } v(\tau, t_M) \neq 0),$$

$$j^{\Pi}_{M} = \sum_{k=-\infty}^{\infty} j^{\Pi}_{k} e^{ik\omega t}; \quad j^{\Pi}_{k} = \frac{d\tau}{T_0} j(\tau) \frac{v(\tau, t_M)}{v(\tau, t_M)} e^{-ik\omega t_M}$$

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(4) Induced Current in a Planar Diode Gap. As illustration, two examples are analyzed: (a) oscillator with a retarding field; (b) monotron. The electron paths of both devices are pronouncedly different, but from the point of view of the external current, they behave very similarly, the oscillator with a retarding field being considerably more efficient. To emphasize the similarity, the same symbols will be used in the following equations for both devices, with a prime(') added to those of the monotron. Figures 2 and 3 show the schematic arrangement of both devices.

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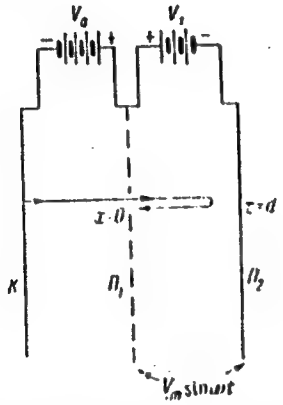

Fig. 2. Schematic layout of an oscillator with retarding field: (K) cathode; (Π_1) grid; (Π_2). reflector plate.

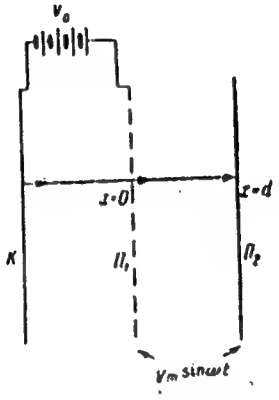

Fig. 3. Schematic layout of a monotron: (K) cathode; (Π_1) grid; (Π_2) collector plate.

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From Eq. (11) after cumbersome operations, the following expressions result for the amplitudes of the induced current harmonics: For the oscillator with delaying field:

$$I_{11} = -\frac{8V_0}{\beta_0 V_1} I_0 \left[J_1(2h) \sin\beta_0 - \frac{h}{\beta_0} - \frac{h}{\beta_0} R_{02}(2h) \cos\beta_0 + \frac{2}{\beta_0} J_1(2h) \cos\beta_0 + \right.$$
$$\left. + \frac{h}{2\beta_0} J_2(4h) \cos 2\beta_0 \right], \qquad (19)$$

$$I_{21} = -\frac{8V_0}{\beta_0 V_1} I_0 \left[J_1(2h) \cos\beta_0 + h + \frac{h}{\beta_0} R_{02}(2h) \sin\beta_0 - \frac{2}{\beta_0} J_1(2h) \sin\beta_0 - \right.$$
$$\left. - \frac{h}{2\beta_0} J_2(4h) \sin 2\beta_0 \right],$$

$$\frac{I_{1k}}{I_{2k}} = \pm \frac{8V_0}{\beta_0 V_1} I_0 \left[\sum_{\nu} \frac{1}{\nu} \lambda_\nu J_\nu(2h\nu) \frac{\cos}{\sin} \beta_\nu \pm \frac{h}{\beta_0 k} R_{1m}(2hk) \frac{\sin}{\cos} \beta_k \mp \right.$$
$$\left. \mp \frac{2}{\beta_0 k^2} J_k(2hk) \frac{\sin}{\cos} \beta_k \right]. \qquad (20)$$

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For the monotron:

$$I'_{11} = -\frac{2I_0}{\beta'_0}\left[J_1(2h')\sin\beta'_0 - \frac{h'}{\beta'_0} + \frac{h'}{\beta'_0}R_{02}(2h')\cos\beta'_0 + \frac{h'}{2\beta'_0}J_2(4h')\cos 2\beta'_0\right], \quad (21)$$

$$I'_{21} = -\frac{2I_0}{\beta'_0}\left[J_1(2h')\cos\beta'_0 + h' - \frac{h'}{\beta'_0}R_{02}(2h')\sin\beta'_0 - \frac{h'}{2\beta'_0}J_2(4h')\sin 2\beta'_0\right].$$

$$\begin{matrix} I'_{1k} \\ I'_{2k} \end{matrix} = \pm\frac{2I_0}{\beta'_0}(-1)^{k+1}\left[\sum_\nu \frac{1}{\nu}\lambda'_\nu J_\nu(2h'\nu)\begin{matrix}\cos\\ \sin\end{matrix}\beta'_\nu + \frac{h'}{\beta'_0 k}R_{1m}(2h'k)\begin{matrix}\sin\\ \cos\end{matrix}\beta'_k\right]. \quad (22)$$

β_0 and β'_0 are static transit angles of electrons in oscillator with retarding field and monotron, respectively. Summation in (20) and (22) is made per 3 numbers ν, $\nu = l$,k, m where l = k - 1, m = k + 1; k = 2,3...., $R_{IJ} = J_I - J_J$ (J_n = Bessel's function of the n-th order); $\beta_\nu = \nu\left(\beta_0 + \frac{\pi}{2}\right)$; $\beta'_\nu = \nu\left(\beta'_0 + \frac{\pi}{2}\right)$

Coefficients λ_ν , λ'_ν are determined from:

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$$\lambda_\nu = \begin{cases} 1 & \text{for } \nu = k, \\ \frac{h}{\beta_0} & \text{for } \nu = l, m, \end{cases} \qquad \lambda'_\nu = \begin{cases} 1 & \text{for } \nu = k, \\ \frac{h'}{\beta_0} & \text{for } \nu = l, m. \end{cases}$$

The electronic efficiency coefficient can be determined from:

$$\eta = -\frac{1}{2}\frac{V_m I_{11}}{I_0 V_0}, \quad \eta' = -\frac{1}{2}\frac{V_m I_{11}}{I_0 V_0}$$

Since h/β_0 and h/β_0 are small, the expressions for the coefficients of efficiency and harmonics of the induced current can be simplified. A table with simplified formulas is given. Seven diagrams with calculated values of electronic coefficients of efficiency, amplitudes of harmonics, and magnitudes of induced current are given. Ye. P. Nesterova and I.V. Lebedev helped. In an addendum some additional formulas are given. There are 8 figures; 1 table; 1 addendum; and 10 references, 7 Soviet, 6 U.S., 1 Swiss, 1 French, 1 Swedish. The U.S. references are: W. Shockley, J. Appl. Phys., 1948.

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TABLE A

1	2	3
4	$\eta = \frac{4h}{\beta_0^2}[J_1(2h) \times$ $\times (\beta_0 \sin\beta_0 + 2\cos\beta_0) - h]$	$\eta' = \frac{4h'}{\beta_0'^2}[J_1(2h')\ \beta_0' \sin\beta_0' - h'$
5	$G_e = -Z_0 \frac{4V_0}{V_1\beta_0^2}\left[\frac{J_1(2h)}{2h} \times\right.$ $\left.\times (\beta_0 \sin\beta_0 + 2\cos\beta_0) - \frac{1}{2}\right]$	$G_e' = -Z_0 \frac{1}{\beta_0'^2}\left[\frac{J_1(2h')}{2h'} \times\right.$ $\left.\times \beta_0' \sin\beta_0' - \frac{1}{2}\right]$
6	$B_e = -Z_0 \frac{4V_0}{V_1\beta_0^2}\left[\frac{J_1(2h)}{2h} \times\right.$ $\left.\times (\cos\beta_0 - \frac{2}{\beta_0}\sin\beta_0) + \frac{1}{2}\right]$	$B_e' = -Z_0' \frac{1}{\beta_0'^2} \times$ $\times\left[\frac{J_1(2h')}{2h'}\cos\beta_0' + \frac{1}{2}\right]$
7	$I_{1k} = 2I_0 \frac{4V_0}{V_1} \frac{\cos k\left(\beta_0 + \frac{\pi}{2}\right)}{k\beta_0} \times$ $\times J_k(2hk)$	$I_{1k}' = 2I_0(-1)^{k+1} \times$ $\times \frac{\cos k\left(\beta_0' + \frac{\pi}{2}\right)}{k\beta_0'} J_k(2h'k)$
8	$I_{2k} = -2I_0 \frac{4V_0}{V_1} \times$ $\times \frac{\sin k\left(\beta_0 + \frac{\pi}{2}\right)}{k\beta_0} J_k(2hk)$	$I_{2k}' = -2I_0(-1)^{k+1} \times$ $\times \frac{\sin k\left(\beta_0' + \frac{\pi}{2}\right)}{k\beta_0'} J_k(2h'k)$

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Caption on Card 20/21

On the Calculation of Induced Current Caused by Arbitrary Movement of Charged Particles

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Table A: (1) Parameters; (2) oscillator with retarding field; (3) monotron; (4) electronic coefficient of efficiency; (5) active conductance of beam; (6) reactive conductance of beam; (7) amplitudes of higher active harmonics of induced current (k = 2, 3...); (8) amplitudes of higher reactive harmonics of induced current (k = 2, 3....).

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On the Calculation of Induced Current Caused by Arbitrary Movement of Charged Particles

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PRESENTED: At the Seminar of the IRE AN SSSR (Institute of Radio and Electronics AS USSR) February 26, 1959

SUBMITTED: May 11, 1959

Card 21/21

GAYDUK, B. V., CHERNOBYL, E. I., KLIMENKO, A. P., and KANEVETS, G. E.

"More Accurate Design of Heat Exchangers."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

KLIMENKO, A.P.; KANEVETS, G.Ye.; GAYDUK, B.V.

Production of energy in the heat consumption of casing-head gasoline plants. Trudy Inst.isp.gaza AN USSR 9:103-108 '61. (MIRA 15:9)

(Gasoline) (Heat engineering)

KLIMENKO, A.P.; KANEVETS, G.Ye.; GAYDUK, B.V.; CHERNOBEL'SKAYA, E.I.

Designing optimum heat exchange units with the aid of electronic calculating machines. Trudy Inst.isp.gaza AN USSR 9:111-118 '61. (MIRA 15:9)

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"Calculation Method of the Optimum Heat Exchangers by Electron Computers."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

GAYDUK, I

S/079/60/030/04/80/080
B001/B003

S 2640

AUTHOR: Ionel Gayduk

TITLE: The Electronegative Character of Elements and the Formation of Inorganic Rings and Chains

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 4, pp. 1395-1396

TEXT: The electronegative nature of elements (x) according to the scheme by Pauling (Refs. 1,2) in the periodic system changes from the value x = 0.75 for Cs to the value x = 4.0 for F. Smaller values of x indicate the trend of the elements toward emission of electrons and greater values of x point to the trend of elements toward acquisition of electrons. When computing the arithmetical mean between x_{Cs} and x_F the value x = 2.4 is obtained. As is well-known, the electronegativity of carbon is 2.5 denoting that carbon has a slight trend toward acquisition and emission of electrons. This fact indicates a particular inclination to form chains and rings. Hence it follows that rings and chains consisting of atoms of an element with a value x $>$ 2.5 (electronegative metalloids as e.g. O,N)

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are not stable owing to their inclination to acquire electrons. Vice versa, rings and chains consisting of atoms of an element with a value $x < 2.5$ (electropositive metalloids as e.g. Si, P, Ge, As, Sb) are not stable due to the trend for emission of electrons. Obviously a compensation takes place in the case of the sequence of the elements A and B with the values $x_A < 2.5$ and $X_B > 2.5$, which effects a stabilization of the ring or the chain. Inorganic rings (Ref. 3) and chains (Ref. 4) of this kind are indeed described in publications. The electronegative values for a series of elementary pairs are listed in a table, which are computed according to formula $x_{AB} = (x_A + x_B)/2$. It may be stated that elements corresponding to the equation $x_{AB} = 2.5 \pm 0.35$ (where $2.5 = x_C$) are able to form inorganic rings or chains. Thus, a synthesis of new inorganic cyclic or highly molecular compounds with the links Ge - N, Ge - S, As - N, Sb - N, and others may be expected. There are 1 table and 4 references, 2 of which are Soviet.

The Electronegative Character of Elements and the Formation of Inorganic Rings and Chains

S/079/60/030/04/80/080
B001/B003

ASSOCIATION: Khimicheskiy fakul'tet universiteta imeni "Babesh-Boley" Kluzh Rumyniya(Chemical Department of the University imeni "Babesh-Boley" Cluj, Rumania)

SUBMITTED: November 30, 1959

Card 3/3

GAYDUK I.M

GAIDUK, I. M. [Gayduk, I. M.] (Kharkov)

Teacher of the Soviet teachers; on the occasion of the jubilee of Prof. V. M. Bradis, Doctor of Pedagogic Sciences. Gaz mat fiz 13 no.10:553-556 O '61.

(Bradis, Vladimir Modestinovich)
(Mathematicians, Russian)

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(Humic acid)

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Thermal degradation of humic acids. Report No. 2: Effect of the nature of peat on the kinetics of thermal degradation of humic acids. Trudy Inst. torfa AN BSSR 7:291-303 '59. (MIRA 14:1)
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(Humic acids)

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Use of peat wax as lubricant for molding powders. Plast.massy no.6:64-65 '65. (MIRA 18:8)

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[Short handbook on small bridges and conduits; research and planning] Kratkii spravochnik po malym mostam i trubam; izyskaniia i proektirovanie. Moskva, Izd-vo dorozhno-tekhn. lit-ry, 1953. 224 p. (MLRA 7:3)
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